If you are using a printed copy of this procedure, and not the on-screen version, then you <u>MUST</u> make sure the dates at the bottom of the printed copy and the on-screen version match.

The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.

Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ

Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

4.120.81.b Tandem Gate Tests

Attachment

C-A-OPM Procedures in which this Attachment is used.				
4.120.81				

Hand Processed Changes

Date

	~•	T744	
∆ nnroved:	Signature o	n Hilo	
Approveu.	Signature o	11 116	
	Collider-Accelerator De	nortment Chairman	Date
	. OHIGEL-ACCELETATOL I JE	DALLINEID CHAILINAN	Date

Page Nos.

V. Castillo

HPC No.

Initials

4.120.81.b Tandem Gate Tests

PASS SEMI-ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title:	Checksum:
Division B Software Filename and Checksum: Title:	Checksum:
<u>Initial testing complete</u> :	
Test Team Leader's Name (Print):	Life Number:
Test Team Leader's Name (Sign):	
Test Team Leader's Name (Sign).	
Acceptance test procedure complete (following repairs and retesting if required):	:
Test Team Leader's Name (Print):	Life Number:
Test Team Leader's Name (Sign):	Date://
rest ream Beater s Name (Sign):	Date:
<u>Test results reviewed by:</u>	
Safety Section Head's Name (Print):	Life Number:
Safety Section Head's Name (Sign):	Date://
Salety Section Head 5 Ivame (Sign).	Datt
Test results accepted by Radiation Safety Committee:	
RSC Member's Name (Print):	Life Number:
DSC Mombow's Name (Sign).	Doto: / /
RSC Member's Name (Sign):	Date://

2

1.1 CONDUCT Visual check on Tandem gates following Table-1, below

	Micro	Switch	Elec	<u>Gate</u>		Gat	te Functi	ons	Verify	Inspn
<u>Gate</u>	<u>Align</u>	<u>Opern</u>	Wiring	Box	<u>Lights</u>	<u>Open</u>	Self-	<u>Latch</u>	all x's Corr.	O.K. <u>Init.</u>
TTD							Closing	2711		
TTB							N/A	N/A		
TR4PG										
TR4ES										
TR2SH							N/A	N/A		
EEPSG							N/A	N/A		
<u>TCRPL</u>							N/A	N/A		
<u>TCRSH</u>							N/A	N/A		
<u>MERES</u>							N/A	N/A		
MERSH							N/A	N/A		

Legend: Tick = O.K. x = Problem N/A = Not Applicable

Table 1: Summary of Physical Inspection of Tandem Gates

1.2	Test of Ta □	ndem to Booster VERIFY	TTB) Gate: TTB gate has been inspected	
		OPEN	TTB gate	
		CLOSE VERIFY VERIFY	Div A and Div B Micro Switch (MS) At TTB gate box Door Closed light <u>Tandem Control Room (TCR) sees TTB gate</u>	ON CLOSED
		OPEN VERIFY CLOSE VERIFY	Div A MS At TTB gate box Door Closed light Div A MS At TTB gate boy Door Closed light	OFF ON
		VERIFY	At TTB gate box Door Closed light	ON
		OPEN VERIFY VERIFY OPEN VERIFY VERIFY	Div B MS At TTB gate box Door Closed light TCR sees TTB gate Div B MS At TTB gate box Door Closed light TCR sees TTB gate	OFF CLOSED OFF OPEN
		CLOSE VERIFY VERIFY	Div A and Div B MS At TTB gate box Door Closed light is <u>TCR</u> sees <u>TTB</u> gate	ON CLOSED
		CLOSE VERIFY VERIFY VERIFY	TTB gate TCR sees TTB gate At TTB gate box Gate Reset light is TCR sees TTB gate Div A □ and Div B □	CLOSED OFF <u>NOT RESET</u>
		RESET VERIFY VERIFY	TTB gate at TTB gate box with Key # MS11 At TTB gate box Gate Reset light is TCR sees TTB gate Div A and Div B	ON <u>RESET</u>

		OPEN	TTB gate and hold open	
		VERIFY VERIFY VERIFY	At TTB gate box Gate Reset light is TCR sees TTB gate TCR sees TTB gate Div A and Div B	OFF OPEN <u>NOT RESET</u>
		CLOSE VERIFY	TTB gate TCR sees TTB gate	CLOSED
	□ Check	k for acceptan	nce of Test of Tandem to Booster (TTB) Gate.	
1.3	Test □	of Target Ro VERIFY OPEN	oom 4 Passageway Door (TR4PG) Door: TR4PG gate has been inspected TR4PG gate	
		CLOSE VERIFY VERIFY OPEN VERIFY VERIFY	Div A MS At TR4PG gate box Door Closed light Tandem Control Room (TCR) sees TR4PG gate Div A MS At TR4PG gate box Door Closed light TCR sees TR4PG gate	OFF OPEN OFF OPEN
		CLOSE VERIFY VERIFY OPEN VERIFY VERIFY	Div B MS At TR4PG gate box Door Closed light TCR sees TR4PG gate Div B MS At TR4PG gate box Door Closed light TCR sees TR4PG gate	OFF CLOSED OFF OPEN
		CLOSE	Div A and Div B MS	
		VERIFY VERIFY	At TR4PG gate box Door Closed light is TCR sees TR4PG gate	ON CLOSED
		CLOSE VERIFY VERIFY VERIFY	TR4PG gate TCR sees TR4PG gate At TR4PG gate box Gate Reset light is TCR sees TR4PG gate Div A □ and Div B □	CLOSED OFF <u>NOT RESET</u>
		RESET VERIFY VERIFY	TR4PG gate at TR4PG gate box with Key # MS11 At TR4PG gate box Gate Reset light is TCR sees TR4PG gate Div A □ and Div B □	ON <u>RESET</u>
		OPEN	TR4PG gate and hold open	
		VERIFY VERIFY VERIFY	At TR4PG gate box Gate Reset light is <u>TCR sees TR4PG gate</u> <u>TCR sees TR4PG gate Div A \square and Div B \square</u>	OFF OPEN <u>NOT RESET</u>
		CLOSE VERIFY	TR4PG gate TCR sees TR4PG gate (TD4DG) P	CLOSED

[☐] Check for acceptance of Test of Target Room 4 Passageway (TR4PG) Door.

1.4	Test	t of TR4 Entr VERIFY OPEN	y and Shield (TR4ES) Doors: TR4ES doors have been inspected TR4 Shield door and Hold open	
		OLEN	1 K4 Sineid door and Hold open	
		OPEN	TR4 Entry door and Test MSs	
		CLOSE	Div A MS	
		VERIFY	At TR4ES gate box Entry Door Closed light	OFF
		VERIFY	Tandem Control Room (TCR) sees TR4 Doors	OPEN
		OPEN	Div A MS At TD4ES gots how Entry Door Closed light	OFF
		VERIFY VERIFY	At TR4ES gate box Entry Door Closed light TCR sees TR4 Doors	OFF OPEN
	Ш	VEXII I	TOR Sees TR4 Doors	OLEN
		CLOSE	Div B MS	
		VERIFY	At TR4ES gate box Entry Door Closed light	OFF
		VERIFY	TCR sees TR4 Doors	OPEN
		OPEN	Div B MS	
		VERIFY	At TR4ES gate box Entry Door Closed light	OFF
		VERIFY	TCR sees TR4 Doors	OPEN
		CLOSE	Div A and Div B MS	
		02002		
		VERIFY	At TR4ES gate box Entry Door Closed light is	ON
		VERIFY	TCR sees TR4 Doors	OPEN
		CLOSE	TR4 Entry door	
		VERIFY	TCR sees TR4 Doors	OPEN
		OPEN	TR4 Entry Door and hold open	
		OPEN	TR4 Shield door and Test MSs	
		CLOSE	Div A MS	
		VERIFY	At TR4ES gate box Shield Door Closed light	OFF
		VERIFY	TCR sees TR4 Doors	OPEN
	_	OPEN	Div A MS	OFF
		VERIFY	At TR4ES gate box Shield Door Closed light	OFF
		VERIFY	TCR sees TR4 Doors	OPEN
		CLOSE	Div B MS	
		VERIFY	At TR4ES gate box Shield Door Closed light	OFF
		VERIFY	TCR sees TR4 Doors	OPEN
		OPEN	Div B MS	
		VERIFY	At TR4ES gate box Shield Door Closed light	OFF
		VERIFY	TCR sees TR4 Doors	OPEN
		CLOSE	Div A and Div B MS	
		VERIFY	At TR4ES gate box Shield Door Closed light is	ON
		VERIFY	TCR sees TR4 Doors	OPEN
	Ш	CLOSE	TR4 Shield door	OI EIV
		CLOSE	TR4 Entry Door	
		VERIFY	At TR4ES gate box Entry Door Closed light is	ON
		VERIFY	TCR sees TR4 Doors	CLOSED
		VERIFY	At TR4ES gate box Gate Reset light is	OFF
		VERIFY	\overline{TCR} sees $\overline{TR4}$ Doors Div A \square and Div B \square	NOT RESET

	RESET	TR4ES gate at TR4ES gate box with Key # MS11	
	VERIFY VERIFY	At TR4ES gate box Gate Reset light is TCR sees TR4 Doors Div A and Div B	ON <u>RESET</u>
	OPEN	TR4 Entry Door and hold open	
	VERIFY VERIFY VERIFY	TCR sees TR4 Doors At TR4ES gate box Gate Reset light is TCR sees TR4 Doors Div A and Div B	OPEN OFF <u>NOT RESET</u>
	CLOSE VERIFY	TR4 Entry Door <u>TCR sees TR4 Doors</u>	CLOSED
	RESET	TR4ES gate at TR4ES gate box with Key # MS11	
	VERIFY VERIFY	At TR4ES gate box Gate Reset light is TCR sees TR4 Doors Div A and Div B	ON <u>RESET</u>
	OPEN	TR4 Shield Door and hold open	
	VERIFY VERIFY VERIFY	TCR sees TR4 Doors At TR4ES gate box Gate Reset light is TCR sees TR4 Doors Div A □ and Div B □	OPEN OFF <u>NOT RESET</u>
	CLOSE	TR4 Shield Door	
□ Chec	k for acceptan	ce of Test of TR4 Entry and Shield (TR4ES) Doors.	
1.5 Tes □	t of Target Ro VERIFY OPEN	oom 2 Shield (TR2SH) Door: TR2SH gate has been inspected TR2SH gate	
	CLOSE VERIFY VERIFY OPEN VERIFY VERIFY	Div A MS At TR2SH gate box Door Closed light Tandem Control Room (TCR) sees TR2SH gate Div A MS At TR2SH gate box Door Closed light TCR sees TR2SH gate	OFF OPEN OFF OPEN
	CLOSE VERIFY VERIFY OPEN VERIFY VERIFY	Div B MS At TR2SH gate box Door Closed light TCR sees TR2SH gate Div B MS At TR2SH gate box Door Closed light TCR sees TR2SH gate	OFF CLOSED OFF OPEN
	CLOSE	Div A and Div B MS	
	VERIFY VERIFY	At TR2SH gate box Door Closed light is <u>TCR sees TR2SH gate</u>	ON CLOSED
	CLOSE VERIFY VERIFY VERIFY	TR2SH gate At TR2SH gate box Door Closed light is TCR sees TR2SH gate At TR2SH gate box Gate Reset light is	ON CLOSED ON
C-A-OPM-ATT 4	.120.81.b (Y	6	Revision 00 October 9, 2002

		VERIFY	$\overline{\mathbf{TCR}}$ sees $\overline{\mathbf{TR2SH}}$ gate $\overline{\mathbf{Div}}$ $\overline{\mathbf{A}}$ \square and $\overline{\mathbf{Div}}$ $\overline{\mathbf{B}}$ \square	NOT RESET
		RESET	TR2SH gate at TR2SH gate box with Key # MS11	
		VERIFY	At TR2SH gate box Gate Reset light is	ON
		VERIFY	$\overline{\mathbf{TCR}}$ sees $\overline{\mathbf{TR2SH}}$ gate $\overline{\mathbf{Div}}$ $\overline{\mathbf{A}}$ \square and $\overline{\mathbf{Div}}$ $\overline{\mathbf{B}}$ \square	<u>RESET</u>
		OPEN	TR2SH gate and hold open	
		VERIFY	At TR2SH gate box Gate Reset light is	OFF
		VERIFY	TCR sees TR2SH gate	OPEN
		VERIFY	$\overline{\mathbf{TCR}}$ sees $\overline{\mathbf{TR2SH}}$ gate $\overline{\mathbf{Div}}$ $\overline{\mathbf{A}} \square$ and $\overline{\mathbf{Div}}$ $\overline{\mathbf{B}}$ \square	NOT RESET
		CLOSE	TR2SH gate	
	Checl	k for acceptar	nce of Test of Target Room 2 Shield (TR2SH) Door.	
1.6	Test		geway (EEPSG) Door:	
		VERIFY	EEPSG gate has been inspected	
		OPEN	EEPSG gate	
		CLOSE	Div A MS	
		VERIFY	At EEPSG gate box Door Closed light	OFF
		VERIFY	Tandem Control Room (TCR) sees EEPSG gate	OPEN
		OPEN VERIFY	Div A MS At EEPSG gate box Door Closed light	OFF
		VERIFY	TCR sees EEPSG gate	OPEN
		, 2202 2		01211
		CLOSE	Div B MS	0.77
		VERIFY	At EEPSG gate box Door Closed light	OFF
		VERIFY OPEN	<u>TCR sees EEPSG gate</u> Div B MS	CLOSED
		VERIFY	At EEPSG gate box Door Closed light	OFF
	_		•	
		VERIFY	TCR sees EEPSG gate	OPEN
		CLOSE	Div A and Div B MS	
		VERIFY	At EEPSG gate box Door Closed light is	ON
		VERIFY	TCR sees EEPSG gate	CLOSED
		CLOSE	EEPSG gate	
		VERIFY	TCR sees EEPSG gate	CLOSED
		VERIFY	At EEPSG gate box Gate Reset light is	OFF
		VERIFY	TCR sees EEPSG gate Div A □ and Div B □	NOT RESET
		RESET	EEPSG gate at EEPSG gate box with Key # MS11	
		VERIFY	At EEPSG gate box Gate Reset light is	ON
		VERIFY	TCR sees EEPSG gate Div A \square and Div B \square	RESET
		OPEN	EEPSG gate and hold open	

		VERIFY VERIFY VERIFY	At EEPSG gate box Gate Reset light is TCR sees EEPSG gate TCR sees EEPSG gate Div A and Div B	OFF OPEN <u>NOT RESET</u>
		CLOSE VERIFY	EEPSG gate TCR sees EEPSG gate	CLOSED
	Check	t for acceptan	ace of Test of EE Passageway (EEPSG) Door.	
1.7	Test □	VERIFY	um (TCRPL) and TCR Shield (TCRSH) Doors: TCR doors have been inspected	
		OPEN OPEN	TCR SH door and Hold open TCRPL door and Test MSs	
		CLOSE VERIFY VERIFY OPEN	Div A MS At TCR gate box Plenum Door Closed light Tandem Control Room (TCR) sees CR gate Div A MS	OFF OPEN
		VERIFY VERIFY	At TCR gate box Plenum Door Closed light TCR sees CR gate	OFF OPEN
		CLOSE VERIFY VERIFY OPEN	Div B MS At TCR gate box Plenum Door Closed light TCR sees CR gate Div B MS	OFF OPEN
		VERIFY VERIFY	At TCR gate box Plenum Door Closed light TCR sees CR gate	OFF OPEN
		CLOSE	Div A and Div B MS	
		VERIFY VERIFY CLOSE VERIFY	At TCR gate box Plenum Door Closed light is TCR sees CR gate TCRPL door TCR sees CR gate	ON OPEN OPEN
	_	RESET	TCR doors at TCR gate box with Key # MS11	
		VERIFY VERIFY	At TCR gate box Gate Reset light is TCR sees CR gate Div A □ and Div B □	OFF <u>NOT RESET</u>
		OPEN	TCRPL Door and hold open	
		OPEN CLOSE VERIFY VERIFY OPEN VERIFY VERIFY	TCR Shield door and Test MSs Div A MS At TCR gate box Shield Door Closed light TCR sees CR gate Div A MS At TCR gate box Shield Door Closed light TCR sees CR gate	OFF OPEN OFF OPEN

CLOSE VERIFY VERIFY OPEN VERIFY VERIFY	Div B MS At TCR gate box Shield Door Closed light TCR sees CR gate Div B MS At TCR gate box Shield Door Closed light TCR sees CR gate	OFF OPEN OFF OPEN
CLOSE	Div A and Div B MS	
VERIFY VERIFY	At TCR gate box Shield Door Closed light is <u>TCR sees CR gate</u>	OFF OPEN
CLOSE VERIFY	TCR Shield door TCR sees CR gate	OPEN
RESET	TCR gate at TCR gate box with Key # MS11	
VERIFY VERIFY	At TCR gate box Gate Reset light is <u>TCR sees CR gate Div A \(\Div B \) \(\Div B \)</u>	OFF <u>NOT RESET</u>
CLOSE VERIFY VERIFY VERIFY	TCRPL Door At TCR gate box Plenum Door Closed light is TCR sees CR gate At TCR gate box Gate Reset light is TCR sees CR gate Div A □ and Div B □	ON CLOSED OFF <u>NOT RESET</u>
RESET	TCR gate at TCR gate box with Key # MS11	
VERIFY VERIFY	At TCR gate box Gate Reset light is <u>TCR</u> sees <u>CR</u> gate <u>Div A □</u> and <u>Div B □</u>	ON <u>RESET</u>
OPEN	TCRPL Door and hold open	
VERIFY VERIFY VERIFY CLOSE VERIFY VERIFY	TCR sees CR gate At TCR gate box Gate Reset light is TCR sees CR gate Div A □ and Div B □ TCRPL Door At TCR gate box Plenum Door Closed light is TCR sees CR gate	OPEN OFF NOT RESET ON CLOSED
RESET	TCR gate at TCR gate box with Key # MS11	
VERIFY VERIFY	At TCR gate box Gate Reset light is TCR sees CR gate Div A □ and Div B □	ON <u>RESET</u>
OPEN	TCRSH Door and hold open	
VERIFY VERIFY VERIFY	TCR sees CR gate At TCR gate box Gate Reset light is TCR sees CR gate Div A □ and Div B □	OPEN OFF <u>NOT RESET</u>
CLOSE VERIFY	TCRSH Door TCR sees CR gate	CLOSED

[☐] Check for acceptance of Test of TCR Plenum (TCRPL) and TCR Shield (TCRSH) Doors.

1.8	Test	VERIFY	ape (MERES) and MER Shield (MERSH) Doors: MER doors have been inspected	
		OPEN	MER Shield door and keep open	
		OPEN CLOSE	MER Escape door and Test MSs Div A MS	
		VERIFY	At MER gate box Escape Door Closed light	OFF
		VERIFY	TCR sees Mechanical Room (MR) gate	OPEN
		OPEN	Div A MS	
		VERIFY	At MER gate box Escape Door Closed light	OFF
		VERIFY	TCR sees MR gate	OPEN
		CLOSE	Div B MS	
		VERIFY	At MER gate box Escape Door Closed light	OFF
		VERIFY	TCR sees MR gate	OPEN
	_	OPEN	Div B MS	
		VERIFY	At MER gate box Escape Door Closed light	OFF
		VERIFY	TCR sees MR gate	OPEN
		CLOSE	Div A and Div B MS	
		VERIFY	At MER gate box Escape Door Closed light is	ON
		VERIFY	TCR sees MR gate	OPEN
		CLOSE	MER Escape door	
		VERIFY	TCR sees MR gate	OPEN
		RESET	MER doors at MER gate box with Key # MS11	
		VERIFY	At MER gate box Gate Reset light is	OFF
		VERIFY	$\overline{\mathbf{TCR}}$ sees $\overline{\mathbf{MR}}$ gate $\overline{\mathbf{Div}}$ $\overline{\mathbf{A}} \square$ and $\overline{\mathbf{Div}}$ $\overline{\mathbf{B}}$ \square	NOT RESET
		OPEN	MER Escape Door and hold open	
		OPEN	MER Shield door and Test MSs	
		CLOSE	Div A MS	
		VERIFY	At MER gate box Shield Door Closed light	OFF
		VERIFY	TCR sees MR gate	OPEN
		OPEN VERIFY	Div A MS At MER gate box Shield Door Closed light	OFF
	_			-
		CLOSE	Div B MS	
		VERIFY	At MER gate box Shield Door Closed light	OFF
		VERIFY	TCR sees MR gate	OPEN
		OPEN	Div B MS At MED gate how Shield Door Closed light	OFF
		VERIFY	At MER gate box Shield Door Closed light	OFF
		CLOSE	Div A and Div B MS	
		VERIFY	At MER gate box Shield Door Closed light is	ON
		VERIFY	TCR sees MR gate	OPEN
		CLOSE	MER Shield door	

[[[] '	RESET VERIFY VERIFY VERIFY	MER gate at MER gate box with Key # MS11 At MER gate box Gate Reset light is TCR sees MR gate TCR sees MR gate Div A □ and Div B □	OFF OPEN <u>NOT RESET</u>
	(CLOSE	MER Escape Door	
] '] '	VERIFY VERIFY VERIFY VERIFY VERIFY	At MER gate box Escape Door Closed light is At MER gate box Shield Door Closed light is TCR sees MR gate At MER gate box Gate Reset light is TCR sees CR gate Div A and Div B	ON ON CLOSED OFF NOT RESET
	1	RESET	MER gate at MER gate box with Key # MS11	
[[· '	VERIFY VERIFY VERIFY	At MER gate box Gate Reset light is TCR sees MR gate TCR sees MR gate Div A and Div B	ON CLOSED <u>RESET</u>
	(OPEN	MER Escape Door and hold open	
] '	VERIFY VERIFY VERIFY	TCR sees MR gate At MER gate box Gate Reset light is TCR sees CR gate Div A □ and Div B □	OPEN OFF <u>NOT RESET</u>
	' . '	CLOSE VERIFY VERIFY VERIFY	MER Escape Door TCR sees MR gate At MER gate box Gate Reset light is TCR sees CR gate Div A □ and Div B □	CLOSED OFF <u>NOT RESET</u>
	l	RESET	MER gate at MER gate box with Key # MS11	
C C	-] '	VERIFY VERIFY VERIFY	At MER gate box Gate Reset light is TCR sees MR gate Div A and Div B TCR sees MR gate	ON <u>RESET</u> CLOSED
	(OPEN	MER Shield Door and hold open	
	· •	VERIFY VERIFY VERIFY	At MER gate box Gate Reset light is TCR sees CR gate Div A TCR sees MR gate TCR sees MR gate	OFF <u>NOT RESET</u> OPEN
□ C] '	CLOSE VERIFY or acceptance	MER Shield Door <u>TCR sees MR gate</u> te of Test of MER Escape (MERES) and MER Shield	CLOSED (MERSH) Doors.
		r	END OF TEST PROCEDURE	(
Sign for completion of initial testing:				
Date:				
Sign for completion of final testing:				
Date:/				

TTL:

TTL: